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RESEARCH ARTICLE

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Chromosome numbers for the Italian flora: 14

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Abstract

In this contribution, new chromosome data obtained on material collected in Italy are presented. It includes the first counts for four subspecies of the Italian endemic *Centaurea aplolepa* Moretti, i.e. *C. aplolepa* subsp. *aplolepa*, *C. aplolepa* subsp. *bertolonii*, *C. aplolepa* subsp. *levantina*, and *C. aplolepa* subsp. *parvula*. In addition, the first chromosome count for an Italian population of *Silene canescens* (Caryophyllaceae) is provided.

Keywords

Asteraceae, Caryophyllaceae, *Centaurea*, cytotaxonomy, endemism, *Silene*

How to contribute

Texts concerning new chromosome data should be submitted electronically to Antonio Giacò (antonio.giaco@biologia.unipi.it), including indications on voucher specimens and methods used.

Chromosome counts

Centaurea aplolepa Moretti subsp. *aplolepa* (Asteraceae)

Chromosome number. $2n = 18$ (Fig. 1).

Voucher specimen. Italy. Liguria. Capo Noli (Savona), sulle pareti rocciose (WGS84: 44.196751°N, 8.424978°E), 12 July 2023, *A. Giacò, L. Peruzzi* (PI066169).

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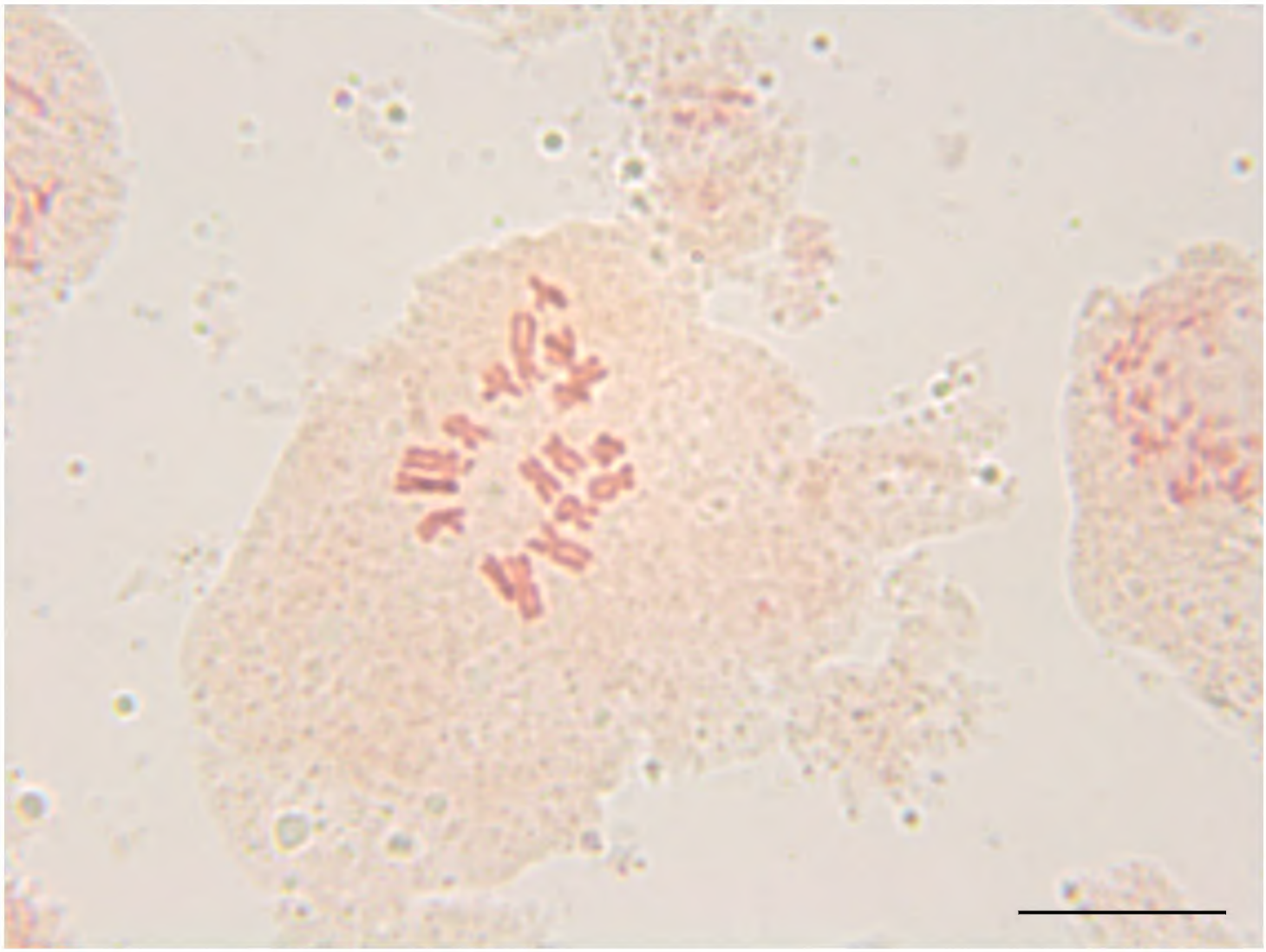

Figure 1. *Centaurea aplolepa* Moretti subsp. *aplolepa* from Capo Noli (Savona), $2n = 18$. Scale bar: 10 µm.

Method. Squash preparations were made on root tips obtained from germinating seeds. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C for 7.5 minutes, the tips were stained with leuco-basic fuchsine.

Observations. *Centaurea aplolepa* is endemic to the Tyrrhenian portion of central-northern Italy and includes ten subspecies (Greuter 2008). The autonymic subspecies is endemic to western Liguria, where it grows on garrigues and cliffs along the coastline (Arrigoni 2003). The chromosome number, obtained from seeds, is reported here for the first time, and is in accordance with chromosome counts previously published for other subspecies of *C. aplolepa* (Viegi et al. 1972; Viegi and Cela Renzoni1976).

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***Centaurea aplolepa* Moretti subsp. *bertolonii* (Arrigoni) Greuter (Asteraceae)**

Chromosome number. $2n = 18$ (Fig. 2).

Voucher specimen. Italy. Liguria. Italia, Genova, nei pressi di Forte Sperone (WGS84: 44.437325°N, 8.931887°E), 12 July 2023, *A. Giacò, L. Peruzzi* (PI066182).

Method. Squash preparations were made on root tips obtained from germinating seeds. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy

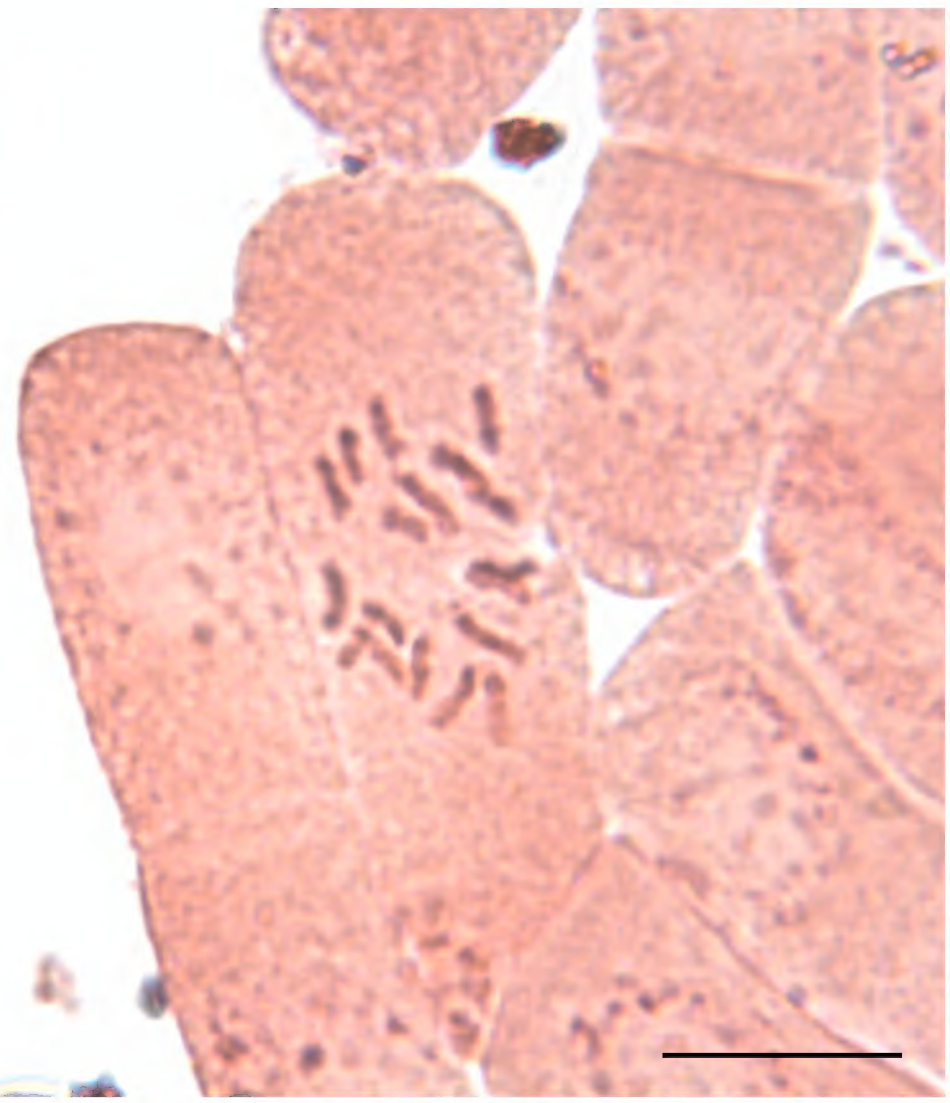

Figure 2. *Centaurea aplolepa* Moretti subsp. *bertolonii* (Arrigoni) Greuter from Genova, $2n = 18$. Scale bar: 10 µm.

solution for 1 h. After hydrolysis in 1N HCl at 60 °C for 7.5 minutes, the tips were stained with leuco-basic fuchsine.

Observations. *Centaurea aplolepa* subsp. *bertolonii* is endemic to the hills over and west of Genova, showing a distribution range that is approximatively in-between those of *C. aplolepa* subsp. *aplolepa* to the west and *C. aplolepa* subsp. *levantina* and *C. aplolepa* subsp. *lunensis* to the east (Arrigoni 2003). The chromosome number, obtained from seeds, is reported here for the first time.

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***Centaurea aplolepa* subsp. *levantina* (Arrigoni) Greuter (Asteraceae)**

Chromosome number. $2n = 18$ (Fig. 3).

Voucher specimen. Italy. Liguria. Sestri Levante (Genova) (WGS84: 44.269873°N, 9.38648°E), piccoli affioramenti rocciosi presso il molo, *A. Giacò, L. Peruzzi* (PI066170).

Method. Squash preparations were made on root tips obtained from germinating seeds. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C for 7.5 minutes, the tips were stained with leuco-basic fuchsine.

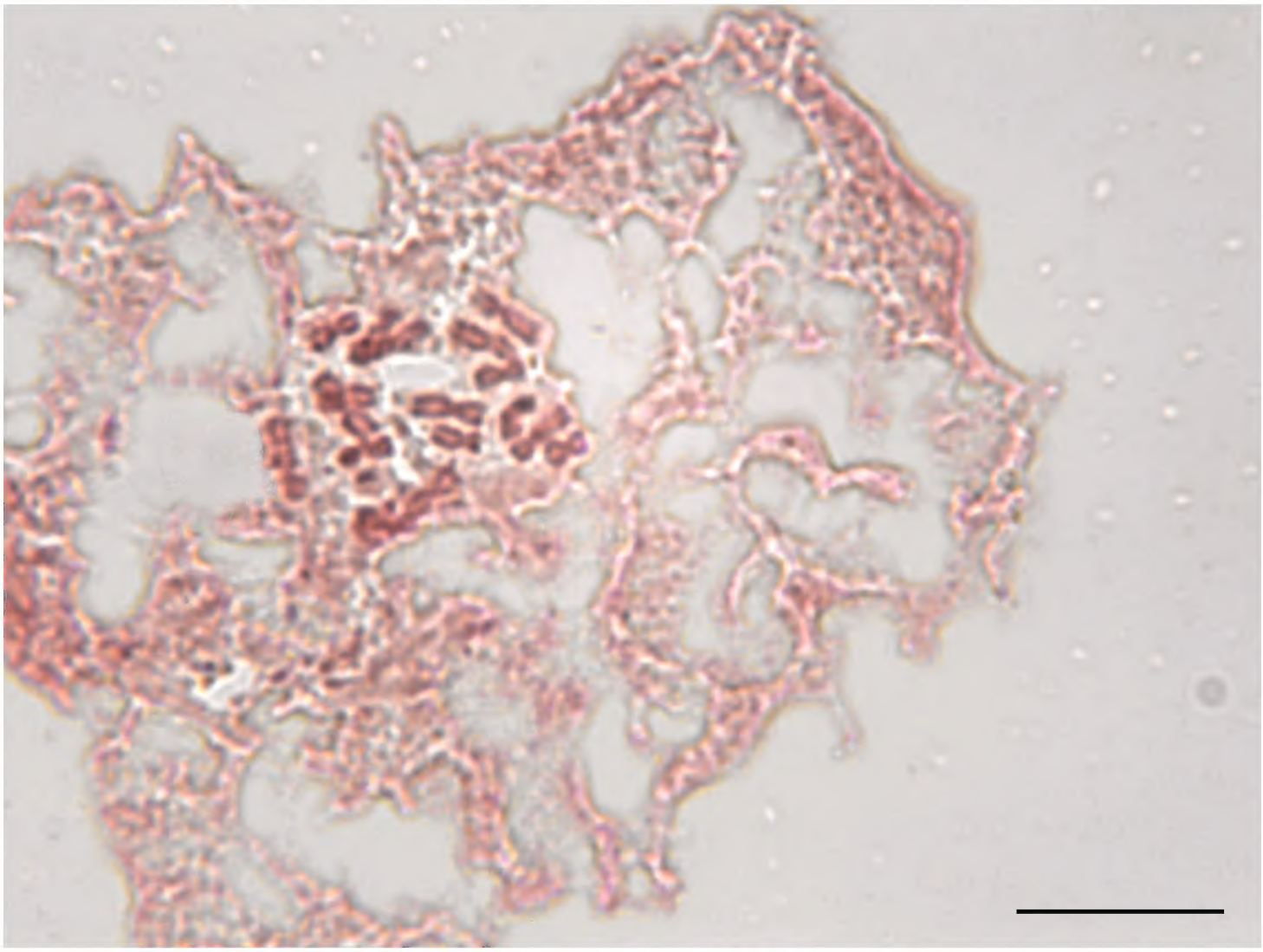

Figure 3. *Centaurea aplolepa* Moretti subsp. *levantina* (Arrigoni) Greuter from Sestri Levante (Genova), $2n = 18$. Scale bar: 10 μm.

Observations. According to Arrigoni (2003), *Centaurea aplolepa* subsp. *levantina* is a coastal ecotype endemic to eastern Liguria. The chromosome number, obtained from seeds, is reported here for the first time.

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***Centaurea aplolepa* subsp. *parvula* (Ces.) Arcang. (Asteraceae)**

Chromosome number. $2n = 18$ (Fig. 4).

Voucher specimen. Italy. Piemonte. Acqui Terme, su calanchi (WGS84: 44.58492°N, 8.35745°E), 12 August 2023, *A. Mo* (PI066166).

Method. Squash preparations were made on root tips obtained from germinating seeds. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C for 7.5 minutes, the tips were stained with leuco-basic fuchsine.

Observations. Albeit *Centaurea aplolepa* subsp. *parvula* was not included by Arrigoni (2003) in his taxonomic revision of the *Centaurea paniculata* L. group, according to Bartolucci et al. (2024), this subspecies is endemic to Liguria and Piemonte. While in Liguria it is only reported for Rossiglione (Genova) (Gola 1912), the only record for Piemonte is represented by the type locality, at Acqui Terme

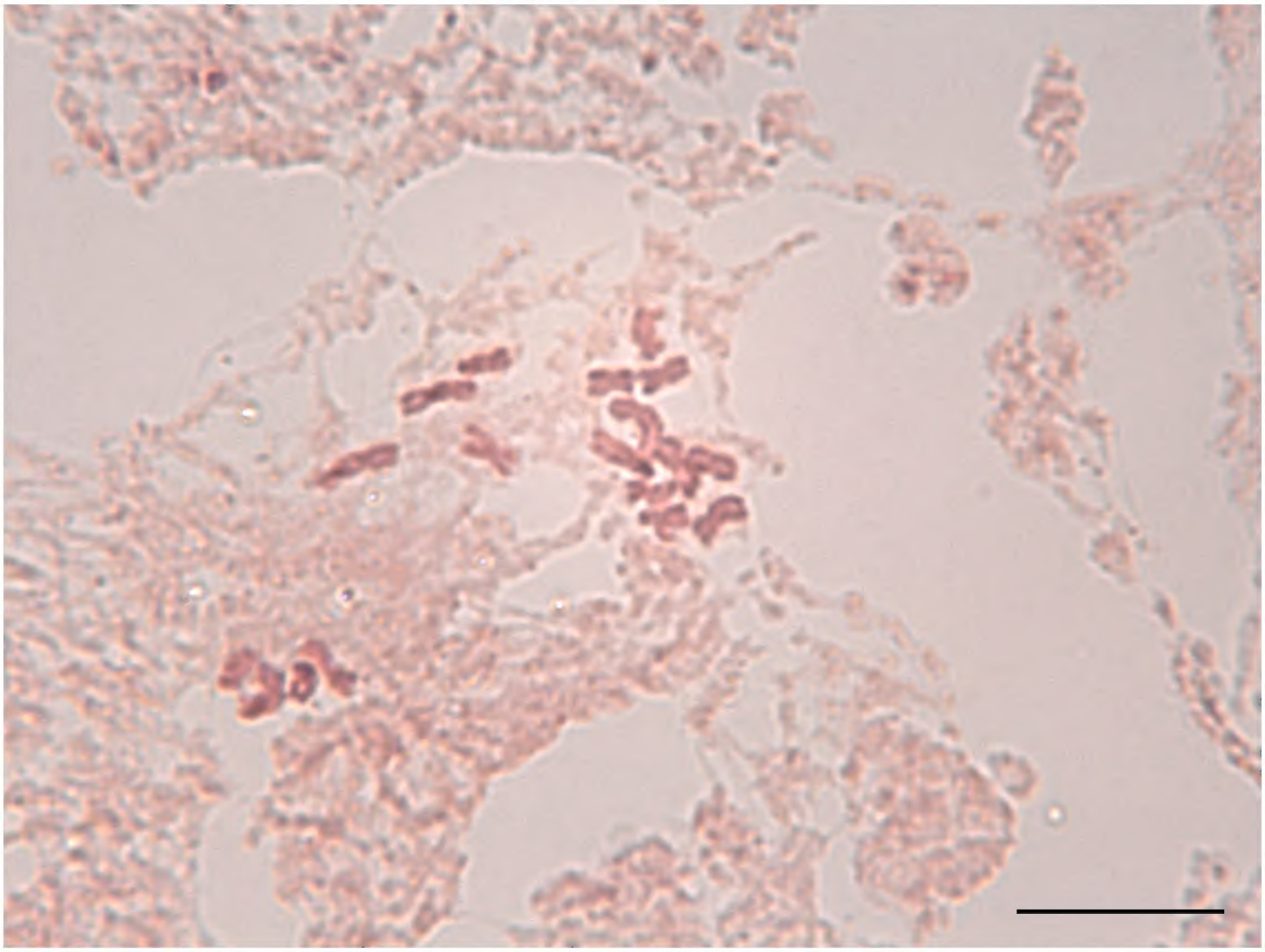

Figure 4. *Centaurea aplolepa* Moretti subsp. *parvula* (Ces.) Arcang. from Acqui Terme (Alessandria), $2n = 18$. Scale bar: 10 μm.

(Alessandria). During a field trip, we found there several populations growing on badlands. The chromosome number, obtained from seeds, is reported here for the first time.

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***Silene canescens* Ten. (Caryophyllaceae)**

Chromosome number. $2n = 24$ (Fig. 5).

Voucher specimen. Italy. Toscana. Marina di Torre del Lago (Viareggio, Lucca), retroduna (WGS84: 43.829054°N, 10.253978°E), 15 Jun 2023, *A. Mo* (seeds collected and deposited at the germplasm bank of the Department of Biology, University of Pisa; a herbarium specimen collected from the same area in 2012 is conserved at PI under the barcode PI063832).

Method. Squash preparations were made on root tips obtained from germinating seeds. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1 N HCl at 60 °C for 8 minutes, the tips were stained with leuco-basic fuchsine.

Observations. *Silene canescens* Ten. is a psammophyte belonging to a species complex distributed throughout the sandy shores of southern Europe (Chater et al. 1993).

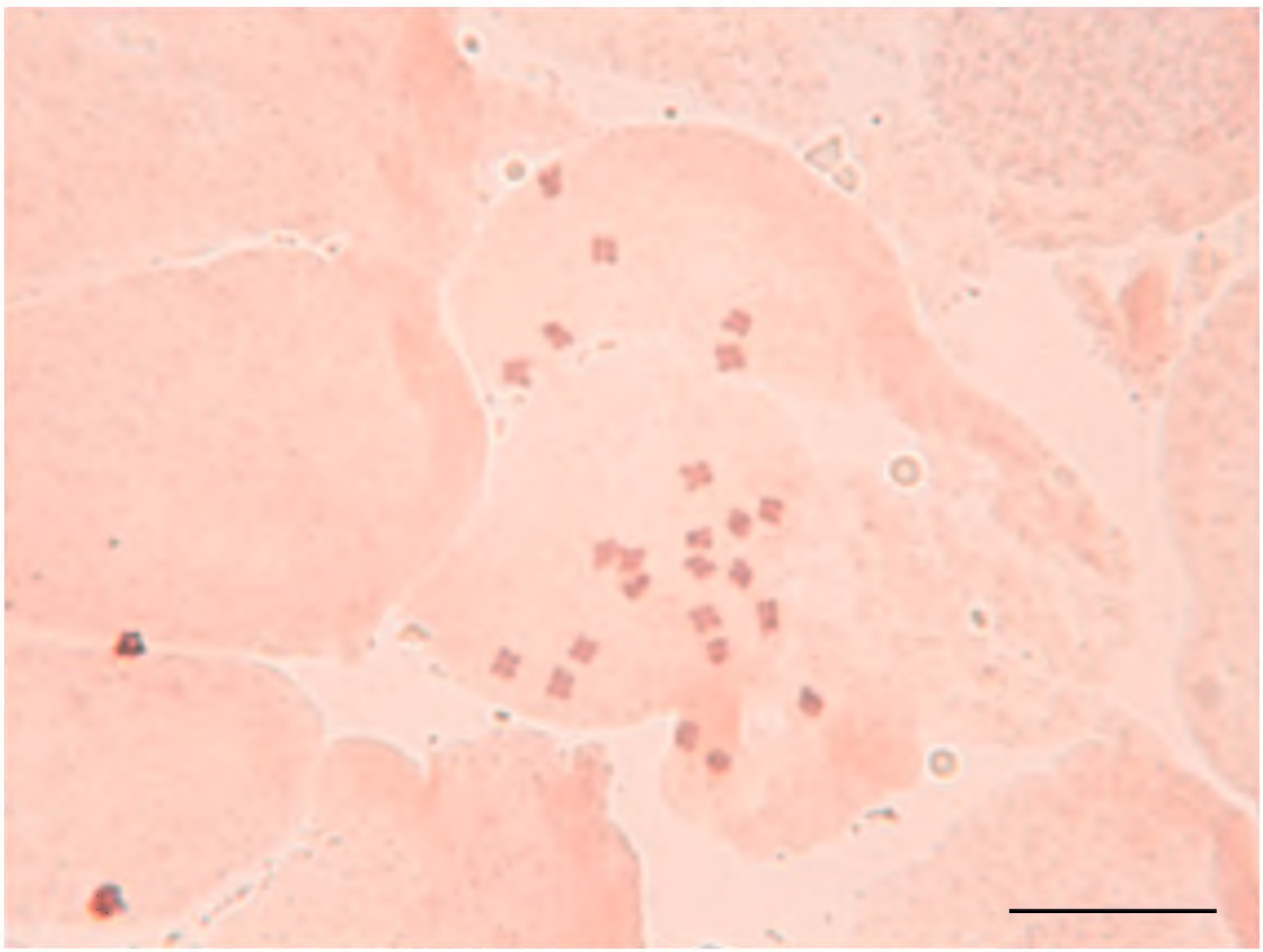

Figure 5. *Silene canescens* Ten. from Torre del Lago (Toscana), $2n = 24$. Scale bar: 10 μm.

Difficulties to delineate its distribution range are due to the confusion with the closely related *S. colorata* Poir. (Valsecchi 1995). In Italy, *S. canescens* is considered taxonomically doubtful, but it occurs in most of the Thyrrenian and Adriatic coasts (Bartolucci et al. 2024). Here we document the first chromosome count ($2n = 2x = 24$) for an Italian population of this species, which is line with previous karyological data (Blackburn and Morton 1957), also concerning the related *S. colorata* (Rice et al. 2015).

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